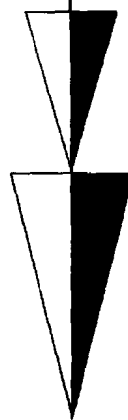


GATED OUTLET APPURTENANCES EARTH DAMS

TECHNICAL
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**UNITED STATES DEPARTMENT of AGRICULTURE
SOIL CONSERVATION SERVICE
ENGINEERING DIVISION**

UNITED STATES
DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
Regional Technical Service Center
Engineering & Watershed Planning Unit
Portland, Oregon

This manual has been prepared to assist the design engineer in development of plans for gated outlet appurtenances associated with small earth dams. The original and resourceful charts provide both ready solution to design and show the full range of compatible alternatives in related design details. The basic design philosophy, criteria and procedure are presented in the accompanying narrative.

Judicious use of both design charts and standard construction details will offer opportunity for a marked improvement in the quality of most plans and an equally significant reduction in time required for their preparation.

Harry W. Firman, Design Engineer, is responsible for the concepts and content of this manual. Robert Morland prepared the chapter, Hydraulic Controls. Valuable counsel and assistance were provided by Frank Muceus, Design Section Head, and other staff members.

June 1969

PRINCIPAL FEATURES of an EARTH DAM

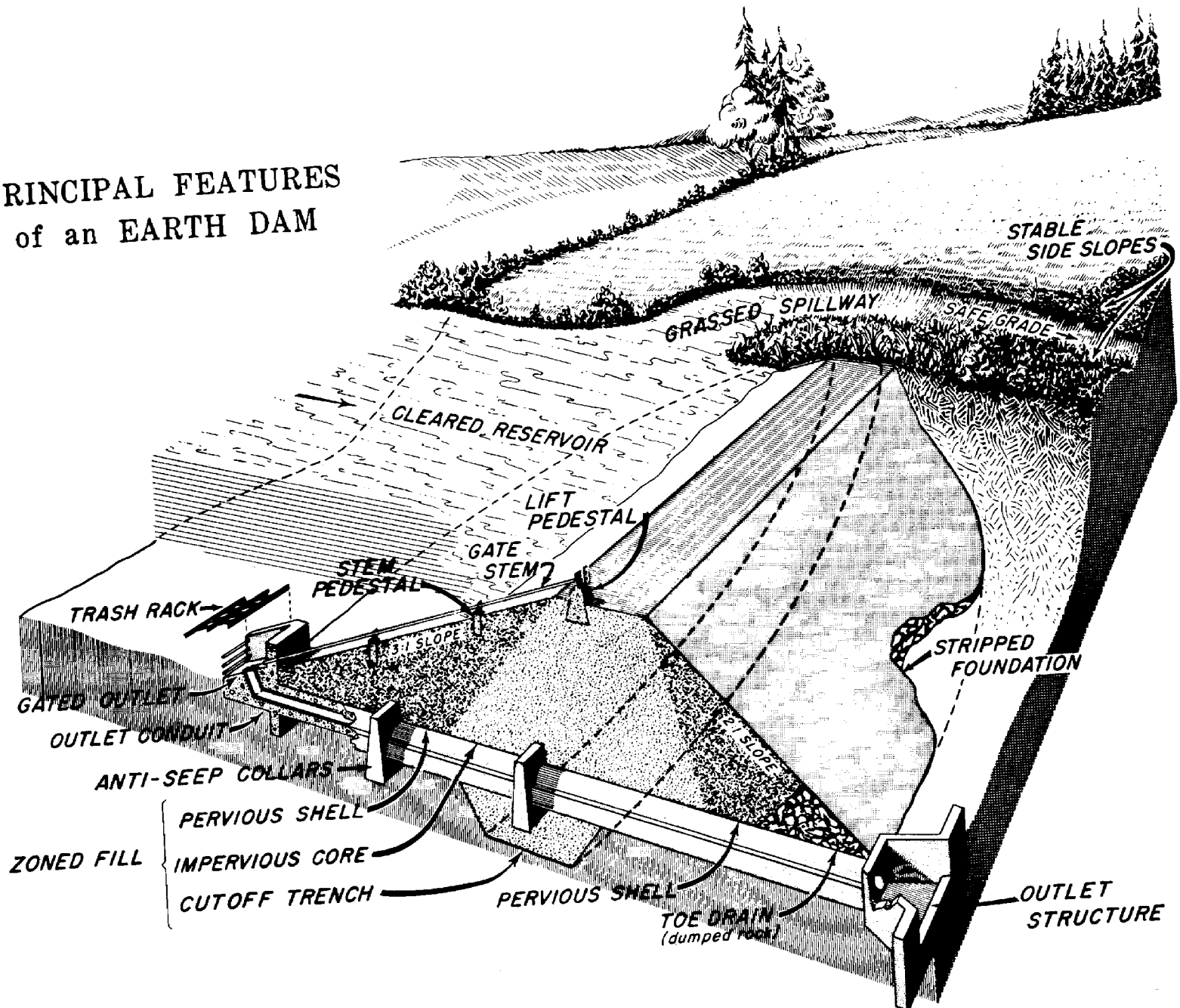


TABLE OF CONTENTS

FRONTISPIECE

Section

A - INTRODUCTION

B - HYDRAULICS

C - INLET STRUCTURE

D - CONTROLS

E - CONDUITS

F - OUTLET STRUCTURES

G - MISCELLANEOUS STRUCTURES

H - DRAWING LAYOUT AND SUMMARY

I - BIBLIOGRAPHY

J - APPENDIX

J	I	H	G	F	E	D	C	B	A
APPENDIX	BIBLIOG.	LAYOUT	MISC.	OUTLETS	CONDUITS	CONTROLS	INLET	HYDRAULICS	INTRO.

SECTION A - INTRODUCTION

<u>Contents</u>	<u>Page</u>
General	A-1

<u>Figures</u>	
A-1 Standard-Equivalent Dam	A-3
A-2 Procedure Flowchart	A-5